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Food vs money? Effects of hunger on mood and behavioral reactivity to reward in anorexia nervosa

Piccolo, Mayron ; Milos, Gabriella ; Bluemel, Sena ; Schumacher, Sonja ; Müller-Pfeiffer, Christoph ; Fried, Michael ; Ernst, Monique ; Martin-Soelch, Chantal

Abstract: **BACKGROUND** Previous studies using neuroimaging and behavioral measures reported altered reward processing in anorexia nervosa (AN). In addition, anhedonia states are frequently reported in AN, potentially due to the physiological stress produced by the permanent starvation. We investigated the effect of fasting and satiety on mood and reaction times to monetary rewards in AN patients and healthy controls. **METHODS** Twenty-four participants with acute AN (BMI 14.4 (11.9-15.5) Kg/m) and 17 age and gender matched healthy, normal weight subjects (HW) (BMI 21.8 (18.9-24.9) Kg/m) performed a reward task (the wheel of fortune) involving uncertain (50/50 probability of winning high and low rewards), safe and risky (30/70 and 10/90 probabilities) categories in fasted (after an 8-h fasting period) and fed (after intake of a standardized meal) states. Data analysis was done with linear mixed models. **RESULTS** AN reacted slower than HW when maximum uncertainty (50/50) was involved. Positive mood in response to winning was higher when fasting especially for HW, while negative mood in response to not winning was higher in the fed state for both groups. Still, HW were more reactive than AN to not winning a highly predictable monetary reward (10/90 safe). **CONCLUSION** The data on the reaction times indicate an impaired motor response to uncertainty in AN. Mood reactivity to winning a monetary reward does not seem to be impaired in AN, however, our results suggest that negative mood in response to not winning is less adaptive in AN. Implications to clinical psychotherapy are discussed.

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